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Roll No. of candidate | | | | | | | | | | |

2020

B.Pharm. 6th Semester End-Term Examination

BIOPHARMACEUTICS AND PHARMACOKINETICS THEORY

(New Regulation)

Full Marks – 75 Time – Three hours

The figures in the margin indicate full marks for the questions.

1. Multiple Choice questions (MCQ) (Answer all questions) : (20 × 1 = 20)

(i) Rate and extent of absorption of unchanged drug from its dosage form is:

(a) Distribution (b) Bioavailability

(c) Elimination (d) Bioequivalence

(ii) Noyes and whitney equation is used for

(a) Absorption (b) Dissolution

(c) Distribution (d) Disintegration

(iii) Class III drugs according to BCS

(a) High solubility/High permeability

(b) Low solubility/High permeability

(c) High solubility/Low permeability

(d) Low solubility/Low permeability

(iv) Which one is true for aqueous solubility of drugs

(a) Anhydrous > Hydrates (b) Hydrates > Anhydrous

(c) Anhydrous = Hydrates (d) None of the above

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(v) With increase pH the solubility of free base will

(a) Increase (b) Decrease

(c) become free acid (d) No effect

(vi) Which is true for bioavailability of drugs

(a) Suspension>Emulsion>Solution

(b) Solution>Suspension>Emulsion

(c) Solution>Emulsion>Suspension

(d) Solution=Emulsion=Suspension

(vii) Transit time of drugs in intestinal region in increasing order

(a) Ileum, Jejunum, Duodenum

(b) Jejunum, Ileum, Duodenum

(c) Duodenum, Jejunum, Ileum

(d) All are same

(viii) Lipid soluble drugs is having

(a) Low Vd (b) No Vd

(c) High Vd (d) No effect

(ix) Creatinine clearance is used to measure

(a) Drug metabolism rate (b) Renal excretion rate

(c) Passive renal excretion (d) Glomerular filtration rate

(x) Tubular reabsorption is achieved by

(a) Active process (b) Passive process

(c) Both (a) and (b) (d) None of the above

(xi) Dissolution test apparatus I as per IP is

(a) Basket (b) Rotating basket

(c) Rotating paddle (d) Paddle

(xii) Half life of drug does not depend upon

(a) Biotransformation (b) Time of drug absorption

(c) Conc. of drug in plasma (d) Rate of drug elimination

(xiii) The ratio of maximum safe concentration to minimum effective concentration is

(a) Therapeutic index (b) Therapeutic ratio

(c) Therapeutic value (d) Therapeutic outcome

(xiv) The characteristics of non linear pharmacokinetics

(a) AUC is proportional to dose

(b) Elimination half life is constant

(c) AUC is not proportional to dose

(d) Drug excretion is constant

(xv) Bioavailability from topical administration is affected by

(a) Skin condition (b) Topical vehicle

(c) Application condition (d) All of the above

(xvi) Conjugation of drug includes all except

(a) Glucoronidation (b) Sulphate formation

(c) Methylation (d) Hydrolysis

(xvii) Poorly excreted drugs have

(a) Low Vd (b) No Vd

(c) High Vd (d) No effect

(xviii) Non linear kinetics follow

(a) Zero order kinetics (b) First order kinetics

(c) Mixed order kinetics (d) All of the above

(xix) Bezodiazepams bind to _____ of HSA

(a) Site I (b) Site II

(c) Site III (d) Site IV

(xx) Normal creatinine clearance value is _____ ml/min

(a) 120-130 (b) 150-180

(c) 50-80 (d) 20-50

2. Long answers (Answer 2 out of 3) (2 × 10 = 20)

(a) What do you mean by absorption? Classify and enumerate the physiochemical properties of drug that influence the GI absorption of a drug. (2+8)

(b) What do you mean by renal clearance? Describe the factors affecting renal clearance. Write a note on non-renal routes of drug excretion. (1+4+5)

(c) What is protein binding? What are the factors that affect protein drug binding? Write a note on significance of protein/tissue binding of drugs. (1+4+5)

3. Short answers (Answer 7 out of 9) (7 × 5 = 35)

(a) Write about the different routes of absorption of drugs from non per oral extra-vascular routes.

(b) Explain the kinetics of protein binding.

(c) What is biotransformation of drugs? Explain the phase I reactions for drug biotransformation.

(d) Explain the working of renal excretion of drugs.

(e) Describe the pharmacokinetic and pharmacodynamic parameters for assessing the plasma concentration time profile of drug.

(f) Describe the Michaelis - Menten equation. Give the assessment of parameters like Km and Vmax.

(g) Write in details about multicompartmental models with emphasis on intravenous bolus administration of drugs.

(h) Explain the *invitro-invivo* correlation.

(i) Write the methods to enhance the bioavailability of poorly soluble drugs.